

## Chapter 1

# Fundamentals

### INTRODUCTION

CAS is an “air action by fixed- and rotary-wing aircraft against hostile targets which are in close proximity to friendly forces and which require detailed integration of each air mission with the fire and movement of those forces.” (Joint Publication (Joint Pub) 1-02, *DOD Dictionary of Military and Associated Terms*)

CAS is an offensive air support (OAS) mission that is planned and executed to deliver firepower against selected enemy capabilities at a designated place and time. By using the speed and mobility of aircraft, CAS provides the commander with the means to strike the enemy swiftly and unexpectedly. Applying the fundamentals of combined arms, the commander integrates CAS with other forms of fire support and the fire and movement of ground forces. In so doing, the commander takes advantage of fleeting battlefield opportunities and achieves combat objectives. CAS is a mission conducted at the tactical level that may affect operational-level objectives.

CAS is conducted when and where friendly combat forces are in close proximity to enemy forces. The word “close” does not imply a specific distance; rather, it is situational. The requirement for detailed integration based on proximity, fires, or movement is the determining factor. CAS provides firepower to neutralize, destroy, or delay enemy forces in offensive and defensive operations.

At times, CAS is the best firepower delivery means available to rapidly mass a lethal capability, exploit tactical opportunities, or save

friendly lives. Available aircraft that are capable of performing CAS are fully integrated into ground operations, thereby giving the commander flexibility in force employment. The effectiveness of CAS is proportional to the degree to which it is integrated into the planning and conduct of MAGTF operations. The supported unit commander influences the use of CAS by requesting and approving all CAS missions within his area of operations.

The MAGTF commander uses CAS to concentrate firepower on the enemy. CAS provides fire support with the speed and violence that is essential in maneuver warfare. The MAGTF commander uses the following criteria to determine CAS employment:

- The MAGTF's mission and concept of operations
- The MAGTF's ability to counter enemy air defenses
- The availability of, and compatibility with, other supporting arms.

Proper and timely communication and control are necessary if CAS is to be successful. To deliver effective CAS, an aircrew must:

- Be responsive
- Remain flexible
- Be familiar with the supported unit's scheme of maneuver and understand the MAGTF commander's intent
- Acquire the correct target
- Place the appropriate type of ordnance accurately on the target.

Although the concept is simple, CAS requires detailed planning, coordination, and training for effective and safe execution.

### FRATRICIDE

Fratricide, or casualties to friendly forces caused by friendly fire, is an undesirable and avoidable circumstance in warfare. All of the TTP outlined throughout this publication are designed to avoid fratricide while maximizing the effectiveness of CAS.

- **Causes.** Although it is occasionally the result of a malfunctioning weapon, fratricide is often the result of uncertainty on the battlefield. Causes include misidentification of targets, target location errors, target locations incorrectly transmitted or received, and loss of situational awareness by either terminal controllers, CAS aircrews, or fire support coordinators. Combat identification (CID) is critical to ensure that effective CAS is delivered while minimizing the potential for fratricide. Commanders, planners, and mission executors must be conversant in standing operating procedures (SOPs) regarding CID. All participants in the CAS process must realize that they could possibly contribute to unintentional or inadvertent friendly fire incidents and therefore must make every effort to prevent such occurrences.
- **Responsibility.** All participants in the CAS employment process—maneuver commanders, commanders providing fire support, fire support coordinators, targeters, terminal controllers, and aircrews—are responsible for the effective and safe execution of CAS. Each participant must make every effort to ensure that friendly units and enemy forces are correctly identified before the release of ordnance. Ultimately, the terminal

controller issuing the “cleared hot” clearance has the responsibility of ensuring that fratricide will not occur when employing CAS.

- **Training.** Commanders and units must constantly emphasize training that routinely exercises CAS TTP. Continuous, realistic training creates a better understanding of battlefield conditions and the situations in which CAS may be employed. Successful CAS training will result in safe and effective CAS employment and provide for synergistic fire support during all MAGTF operations.

## BATTLEFIELD UTILITY

Ground force commanders request CAS to augment organic supporting fires. CAS is used to attack the enemy in a majority of weather conditions, day or night. When CAS is properly employed, commanders can focus its firepower at the decisive time and place to achieve tactical objectives. Advances in TTP and equipment have improved the ability of aircraft to provide close support. By using CAS, commanders can take full advantage of battlefield opportunities. The three-dimensional mobility of aircraft provides commanders with the means to strike the enemy swiftly and unexpectedly. The speed, range, and maneuverability of aircraft allow the attack of targets that other supporting arms may not be able to effectively engage because of limiting factors, such as type of target, range, the terrain, or the friendly ground scheme of maneuver.

## Planning Criteria

The commanders consider the following criteria in planning for CAS:

- Mission and concept of operations
- Enemy air defenses and the force's ability to counter them
- Integration with other supporting arms
- Types of CAS assets available
- Availability of the correct ordnance for the target.

### **CLOSE AIR SUPPORT INTEGRATION**

CAS is integrated with other available supporting fires to support maneuver forces. Whether conducting offensive or defensive operations, commanders plan for CAS at key points throughout the depth of the battlefield. The priority for the assignment of CAS is established by the MAGTF commander and supports his intent and concept of operation. Commensurate with other mission requirements, the aviation combat element (ACE) commander postures aviation assets to optimize support to requesting units.

### **CLOSE AIR SUPPORT EMPLOYMENT**

The organizational structure, missions, and characteristics of CAS-capable aircraft determine how CAS is employed. The integration of CAS-capable aircraft allows ground force commanders to take advantage of the distinctly different, but complementary,

capabilities of each platform to support the fire and maneuver of their units. Although fixed- and rotary-wing aircraft can both provide CAS, employment considerations differ. Some planning and employment methods for CAS with fixed-wing aircraft are not the same as for rotary-wing aircraft.

Although attack helicopters and fixed-wing aircraft capabilities are complementary, neither capability can fully replace the air support provided by the other. The range, speed, and ordnance load of fixed-wing aircraft and the helicopter's excellent responsiveness and ability to operate in diverse conditions represent distinct advantages that are peculiar to each.

To facilitate the integration necessary for effective CAS, aircraft are normally based as close as possible to supported units. CAS aircraft can be provided from main airbases, forward operating bases (FOBs), amphibious ships, or aircraft carriers. This versatility in employment locations is vital when conducting ship-to-objective maneuver (STOM) during operational maneuver from the sea (OMFTS). The ability to operate from areas close to, or over the horizon from, friendly forces offers ground forces greater CAS responsiveness, while providing aviation forces the flexibility to choose the best means to employ CAS assets.

Fixed-wing aircraft are typically tasked and employed to conduct CAS in terms of aircraft sorties. A sortie is defined as "an operational flight by one aircraft." (Joint Pub 1-02) Fixed-wing CAS sorties are normally flown in sections (two aircraft) or divisions (four aircraft).

Rotary-wing aircraft providing CAS are typically tasked and employed in sections, divisions, or flights (two or more divisions). Both fixed- and rotary-wing aircraft are normally assigned as part of the ACE of a MAGTF.

## **THREAT LEVELS**

Threat levels (low, medium, and high) determine CAS feasibility. These are general levels, and at times no clear dividing line may exist between them. Threat levels exist between no air threat capability on the low end to a highly developed and integrated air defense system on the high end. Determination of the threat level is based on:

- The type, quantity, and quality of enemy individual weapons and weapons systems
- Enemy command, control, communications, computers, and intelligence (C4I) systems used to integrate weapons
- Enemy training status.

Threat-level determination is based heavily on enemy capabilities, but friendly capabilities are also weighed in meeting the threat and environmental conditions. Air defense systems that present a low or medium threat level for one type of aircraft may present a high threat level for another type of aircraft. A medium threat level during daylight hours may be a low threat level at night. Current intelligence is used to determine the threat level. Threat-level determination aids aircrews when preparing tactics for a particular situation and environment.

Threat-level identification should be considered when determining air support mission feasibility. See MCWP 3-23 for more information.

## **CONDITIONS FOR EFFECTIVE CLOSE AIR SUPPORT**

For CAS to be delivered effectively, some basic conditions that optimize CAS employment must be considered. These conditions include those discussed in the following paragraphs.

### **Air Superiority**

Air superiority permits CAS operations to function more freely and denies the same advantage to the enemy. Air superiority may range from local or temporary control of the air to control over the entire theater. Air superiority is “that degree of dominance in the air battle of one force over another that permits the conduct of operations by the former and its related land, sea, and air forces at a given time and place without prohibitive interference by the opposing force.” (Joint Pub 1-02) This will involve negating enemy airborne and ground systems, including air-to-air, air-to-surface, surface-to-air, and electronic warfare (EW) systems to a level at which they are incapable of having an adverse effect on friendly force operations.

### **Suppression of Enemy Air Defenses**

Suppression of enemy air defenses (SEAD) may be required for CAS aircraft to operate within areas defended by enemy air defense systems. Available methods to suppress enemy air defense threats include destructive and disruptive means. See MCWP 3-22.2, *Suppression of Enemy Air Defenses*, and Joint Pub 3-01.4, *Joint Tactics, Techniques, and Procedures (JTTP) for Joint Suppression of Enemy Air Defenses (J-SEAD)*, for more information.



## **Target Marking**

The requesting commander can improve CAS effectiveness by providing timely and accurate target marks. Target marking aids CAS aircrews in building situational awareness and in locating and attacking the proper target. See Chapter 4 for further details.

## **Favorable Weather**

Unrestricted horizontal visibility improves CAS aircrew effectiveness regardless of aircraft type. Before CAS missions are executed, minimum weather conditions are considered. The ACE commander determines the worst weather conditions in which CAS missions can be conducted based on regulations, aircraft and equipment limitations, and aircrew experience. Weather conditions worse than those considered to be the minimum will significantly degrade the ability to perform CAS because the majority of CAS aircraft do not have a true all-weather capability.

## **Prompt Response**

To be effective, CAS must be responsive. Streamlined request and control procedures improve responsiveness. Prompt response allows a commander to exploit planned objectives and to take advantage of unanticipated battlefield opportunities. Techniques for improving response time include:

- Using FOBs to decrease the distance to the area of operations
- Placing aircraft on ground or airborne alert status

- Delegating launch and divert authority to subordinate units.

### **Aircrew and Terminal Controller Skill**

CAS execution is complex. Aircrew and terminal controller skills have a direct influence on mission success. Maintaining a high degree of skill requires that aircrews and terminal controllers practice frequently. Realistic training that includes all maneuver elements is essential.

### **Weaponneering**

To achieve the desired level of destruction, neutralization, or suppression of enemy CAS targets, the weapons load, arming settings, and fusing settings must be tailored for the desired results. Cluster and general-purpose munitions are very effective against troops and stationary vehicles. However, hardened, mobile, or pinpoint targets may require specialized weapons, such as laser-guided, electro-optical, or infrared (IR) munitions, or aircraft with special equipment or capabilities. The requesting commander should solicit the type and quantity of ordnance that is appropriate to his needs and be informed of the ordnance load that each supporting CAS aircraft is carrying.

### **Communications and Information Systems**

CAS execution requires dependable and interoperable communications. Unhindered voice or data communications between aircrews, air control agencies, terminal controllers, supported commanders, and fire support agencies greatly increase the ease by which CAS is requested and controlled. Additionally, information flow will come from the battlespace in the form of in-flight reports and mission

reports (MISREPs). Information systems that can relay timely and perishable information, such as target activity after attack and additional targets, will facilitate real-time CAS decisionmaking as well as future CAS planning.

### **Command and Control**

CAS requires integrated, flexible command and control (C2). C2 that facilitates an understanding of the mission and the initiative to adapt to changing battlefield situations is the foundation for creating conditions favorable for CAS employment. Basic requirements for CAS C2 are the ability to process CAS requests, assign assets, communicate taskings, deconflict fires and routing, coordinate support, establish airspace control measures, and update or warn CAS aircraft of enemy threats.

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